1. A composite porous media filter comprising:

a conduit having an inlet for receiving a fluid and an outlet for providing a filtered fluid; and

within the conduit a composite porous media including a foam having a reticulated, inter-cellular structure with a multiplicity of interconnected pores extending therethrough; and sintered powder impregnating pores of the foam.

2. The filter of claim 1, wherein the foam is a ductile metal foam.

3. The filter of claim 1, wherein the foam and the powder are made of metal.

4. The filter of claim 3, wherein each of the foam and the powder is one of stainless steel, nickel, titanium, zirconium, and a nickel alloy.

5. The filter of claim 1, wherein one of the foam and the powder is made of ceramic.

6. The filter of claim 1, wherein one of the foam and the powder is made of an aerogel.

7. The filter of claim 1, wherein the composite porous media includes a layer of sintered powder defining a surface of the media.

8. The filter of claim 7, wherein the layer has a thickness in the range of about 10% to about 50% of the total thickness of the media.

9. The filter of claim 7, wherein the layer has a thickness in the range of about 25% to about 75% of the total thickness of the media.

10. The filter of claim 1, wherein the foam has a density less than about 15% of theoretical density.

11. The filter of claim 10, wherein the foam has a density less than about 10% of theoretical density.

12. The filter of claim 1, wherein the composite porous media has a density in the range of about 20% to about 35% of theoretical density.

13. The filter of claim 1, wherein the foam has in the range of 10 to 150 pores per inch.

14. The filter of claim 13, wherein the sintered powder in the pores provides a porous structure having pores with a nominal size in the range of about 100 micrometers to about 0.1 micrometers.

15. The filter of claim 1, wherein the conduit includes a cylindrical tube.

16. The filter of claim 1, wherein the composite porous media is in the form of a cylinder.

17. The filter of claim 16, wherein the composite porous media includes a layer of sintered powder defining at least one of the inner and outer cylindrical surfaces of the cylinder.

18. The filter of claim 17, wherein the layer has a thickness in the range of about 10% to about 50% of the total wall thickness of the cylinder.

19. The filter of claim 17, wherein the layer has a thickness in the range of about 25% to about 75% of the total wall thickness of the cylinder.